

DaimlerChrysler AG

Patent Claims

- 5 1. An air conditioning method, with which the interior temperature is always regulated to the set desired interior temperature by corresponding adjustment of the temperature of the medium flowing in (blowing-in temperature) taking account of the
- 10 temperature at the time of the exterior, from which the interior medium is drawn, the medium being, if appropriate, cooled and/or heated before flowing in, characterized by the steps
- (step S1) comparing a blowing-in temperature ($T_{\text{blow-in}}$)
- 15 with a preset first threshold value (T_1),
- (step S2) if step S1 reveals that the blowing-in temperature ($T_{\text{blow-in}}$) is greater than or equal to the first threshold value (T_1), carrying out conventional air conditioning depending on the actual interior
- 20 temperature (T_{Iact}), the desired interior temperature (T_{Ides}), the outside temperature (T_0) and optionally the solar radiation (q) and/or the vehicle speed (v) by regulating the blowing-in temperature ($T_{\text{blow-in}}$) and/or the air mass flow,
- 25 (step S3) if step S1 reveals that the blowing-in temperature ($T_{\text{blow-in}}$) lies below the first threshold value (T_1), determining whether a new desired interior temperature ($T_{\text{Ides-new}}$) has been entered by at least one passenger via a desired inside temperature adjustment
- 30 device, if in step S3 no new desired interior temperature ($T_{\text{Ides-new}}$) has been found, returning to step S1,
- (step S4) if in step S3 a new desired interior temperature ($T_{\text{Ides-new}}$) has been found, determining a
- 35 desired inside temperature change (ΔT_{Ides}) from the difference between the new desired interior temperature ($T_{\text{Ides-new}}$) and the previous desired interior temperature ($T_{\text{Ides-old}}$),
- (step S5) establishing whether the desired interior

temperature change (ΔT_{Ides}) has a value smaller than zero and the new desired interior temperature ($T_{\text{Ides-new}}$) lies below a second threshold value (T_2), if either the desired interior temperature change (ΔT_{Ides}) has a value greater than or equal to zero and/or the new desired interior temperature ($T_{\text{Ides-new}}$) is greater than or equal to the second threshold value (T_2), returning to step S1,

(step S6) if the desired interior temperature change (ΔT_{Ides}) is smaller than zero and the new desired interior temperature ($T_{\text{Ides-new}}$) is smaller than the second threshold value, checking whether a fan of the air conditioning system, via which the air mass flow is regulated, is in automatic operation,

(step S7) if the fan is not in automatic operation in step S6, switching the fan over to automatic operation, (step S8) if the fan is in automatic operation in step S6 or has been switched over to automatic operation in step S7, increasing the fan output depending on the outside temperature (T_0) and the desired interior temperature change (ΔT_{Ides}), then return to step S1.

2. The air conditioning method as claimed in claim 1, characterized in that step S7 is carried out directly after step S1.

3. The air conditioning method as claimed in claim 1 or 2, characterized in that if no previous desired interior temperature ($T_{\text{Ides-old}}$) is available, the second threshold value is used instead of it as the previous desired interior temperature ($T_{\text{Ides-old}}$).

4. The air conditioning method as claimed in claim 1, characterized in that steps S6 and S7 are omitted and the regulation is carried out only if it has previously been detected that the fan is in an automatic operation mode.

5. The air conditioning method as claimed in one of

claims 1 to 4, characterized in that the first threshold value is 10°C and the second threshold value is 22°C.

5 6. The air conditioning method as claimed in one of claims 1 to 5, characterized in that the increasing of the fan output depending on the outside temperature (T_o) and the desired interior temperature change (ΔT_{ides}) takes place using reference curves determined by
10 measurement.

7. The air conditioning method as claimed in one of claims 1 to 6, characterized in that the method is carried out separately for each individually air-
15 conditioned vehicle area in a multi-zone air conditioning system.